

### Remarks

The Office Action mailed August 26, 2005 has been carefully reviewed and the foregoing amendment has been made in consequence thereof.

The objection to the disclosure is respectfully traversed. The specification and Claim 7 have been amended to include the step of converting parallel impedance to parallel impedance gap. No new matter has been added. Accordingly, Applicants request that the objection to the disclosure be withdrawn.

The objection to Claims 7 and 8 is respectfully traversed. The specification has been amended to include the step of converting parallel impedance to parallel impedance gap. No new matter has been added. Accordingly, Applicants request that the objection to Claims 7 and 8 be withdrawn.

The rejection of Claims 1-8 under 35 U.S.C. § 102(b) as being anticipated by Slates (U.S. Patent No. 6,346,807) is respectfully traversed.

Slates describes a digital eddy current proximity system (10) that includes a proximity probe (12) for digitally measuring an impedance that is relative to a gap defined between the probe and a metallic target (T) being monitored. The system also includes a signal generator means (70), a timing control means (80), a sampling means (90), a digital convolution means (100), and a digital signal processor means (110). The signal generator includes a plurality of direct digital synthesis devices (72) that are coupled to a resistance means (40) via a filter means (50) and a buffer, gain, and offset means (60) for driving a plurality of dynamic signals at different frequencies through the resistance means and the probe and for obtaining simultaneous impedance measurements of the probe at different frequencies relative to the gap. Notably, Slates does not describe nor suggest determining a plurality of complex impedance values of the transducer at each of the plurality of frequencies, simultaneously determining a plurality of gap values using the data structure and the plurality of complex impedance values, or determining the gap using the plurality of gap values.

Claim 1 recites a method of testing a cable including “measuring at least one inductive ratio for the cable . . . determining simultaneous multifrequency measurements of inductive gap at at least three frequencies utilizing the at least one inductive ratio . . . measuring a parallel impedance of the cable . . . determining a resistance of the cable based on the inductive gap and the parallel impedance.”

Slates does not describe nor suggest a method of testing a cable as recited in Claim 1. Specifically, Slates does not describe nor suggest determining simultaneous multifrequency measurements of inductive gap at at least three frequencies. Rather, in contrast to the present invention, Slates describes in Column 15, lines 19 to 21, “[multiplying a] voltage ratio by a known electrical resistance value R to determine the unknown impedance value of the probe.” In contrast the present invention measures an inductive ratio correlative to an inductive gap. Paragraph [0029] states, “an inductive ratio of [the] cable is measured at a plurality of frequencies. In the exemplary embodiment, [the] system is configured to drive [the] transducer at three different frequencies, each frequency being generated by a different programmable DDS. Substantially simultaneously with the inductive ratio measurement, the system also measures a respective parallel impedance of the cable. The average of the inductive ratios measured at each frequency is computed and correlated to an inductive gap value.” While Slates focuses on the measurement of impedance value at the probe, the present invention focuses on the inductance of the cable without references to a probe. Therefore, it is unnecessary in the present invention to know the electrical qualities of the probe. Accordingly, Claim 1 is submitted to be patentable over Slates.

Claims 2-8 depend from independent Claim 1. When the recitations of Claims 2-8 are considered in combination with the recitations of Claim 1, Applicants submit that dependent Claims 2-8 likewise are patentable over Slates.

For at least the reasons set forth above, Applicants respectfully request that the Section 102 rejection of Claims 1-8 be withdrawn.

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In view of the foregoing remarks, all the claims now active in this application are believed to be in condition for allowance. Reconsideration and favorable action is respectfully requested.

Respectfully Submitted,



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